430 Audit of hearing surveillance in UK paediatric cystic fibrosis units

J.D. Wilkinson[1], J. Mora[2]. [1]*Cystic Fibrosis Unit, RHSC Yorkhill Hospital, Glasgow, United Kingdom;* [2]*Department of Paediatric Audiology, RHSC Yorkhill Hospital, Glasgow, United Kingdom*

Background: Aminoglycosides may be associated with ototoxicity. Children with CF may require several courses of aminoglycosides per year. Although drug levels are monitored, published data suggests that some patients show enhanced susceptibility to aminoglycoside ototoxicity at normal serum levels. We conducted a postal Questionnaire, sent to 27 large Paediatric CF Centres in the UK, to gain information on audiological screening procedures.
Results:22 Centres responded. All Centres reported using IV aminoglycosides. Audiological screening was being carried out at all Centres to some degree. 9/22 (41%) Centres reported having an established protocol in place for audiological screening. 2 Centres carried out baseline hearing tests prior to IV aminoglycoside treatment. 8 (36%) Centres carried out regular hearing tests at least annually in patients receiving Tobramycin. 11 (50%) Centres performed "as required" audiological assessment for reasons such as high drug levels, symptoms of ototoxicity or at transplantation referral. 5 Centres carried out testing at the request of patient or parents. 16 (73%) of Centres stated that they always provide information to families about potential ototoxicity of aminoglycosides. 4 Centres provide written drug information. 12 Centres provide verbal information only.
Conclusion: IV aminoglycosides are used widely within the UK CF Paediatric setting. CF Centre protocols for audiological screening are present in less than half of the Centres responding to this Audit. Drug information about potential ototoxicity is provided by most Centres, although only a small minority provide written information. There seems to be a lack of consensus regarding audiological screening procedures and methods of information sharing.

431 Corneal opacity: rare complication of cystic fibrosis

S. Pekcan[1], M. Kose[1], D. Dogru[1], N. Cobanoglu[1], E. Yalcin[1], M. Irkec[2], U. Ozcelik[1], N. Kiper[1]. [1]*Pediatric Pulmonology Unit, Hacettepe University, Ankara, Turkey;* [2]*Ophthalmology Department, Hacettepe University, Ankara, Turkey*

Cystic fibrosis (CF) is an autosomal recessive disease characterised by increased viscosity of mucus secretions and high chloride concentration in exocrine secretions. Vitamin A deficiency is a common manifestation in CF. The ocular manifestations of hypovitaminosis A are conjunctival and corneal xerosis, keratomalacia including ulceration, night-blindness, severe loss of visual acuity, and flecked retina.
The aim of this report is to describe a youngest patient presenting with corneal opacity and diagnosed as CF.
Case report: A eleven-month-old male infant was referred for assessment of diarrhea, cough, abdominal distantion, vomit, and failure to thrive. On physical examination his weight and height were below the fifth percentile for age. Marked wasting of muscle mass was noted. Subcutan lipoid tissue was decreased, skin was pale. Ocular examination demonstrated that visual acuity was limited to hand motion for each eye. Marked conjunctival hyperemia with dry and keratinized epithelium was present bilaterally. Bilateral corneal opacity was demonstrated. Laboratory abnormalities included hemoglobin 7.8 g/dl (normal: 11.1–13.1 g/dl), wbc 25,000/mm^3, vitamin A: 20.2 mg/dl (30–60 mg/dl), vitamin E: 0.49 μg/dl (0.8–1.5 μg/dl). Serum Zinc level was normal. Sweat chloride was elevated at 72 mEq/L (normal <60mEq/L). The corneal opacity resolved within 2 months of starting pancreatic enzyme, nutritional supplementation vitamin A intake with a daily supplement of 5000 IU/day, and vitamin E 100 IU/day. Molecular genetic studies revealed a homozygote ΔF508 genotype, confirming cystic fibrosis.
Conclusion: Corneal opacity could be seen in CF patients due to hypovitaminosis A. And in corneal lesions CF should be considered for differential diagnosis.

432 Cost saving potential in pharmaceutical treatment of adult patients with cystic fibrosis

C.T. Baltin[1], C. Smaczny[1], T.O. Wagner[1]. [1]*Pneumology/Allergology, J. W. Goethe University, Frankfurt, Germany*

Background: Several studies have identified medication expenses as a major cost driver for the treatment of CF. The present study builds on these studies by conducting in-depth analyses of the saving potential from alternative drugs within the entire medication portfolio.
Objective: The study aims to increase transparency on cost saving potential to maintain a high level of symptomatic treatment for patients with CF. Results will help to develop opportunities to optimize the medication portfolio within the financially tightening pharmaceutical treatment of CF-patients.
Method: Analyses are based on the daily drug intake of adult patients (n = 124) from the CF outpatient department in Frankfurt, Germany for the entire year of 2007. A total of 424 different drugs were classified and separately analyzed using ABDATA database to determine lower-priced substitutes.
Results: Cost saving potential has been identified for 260 out of the 424 drugs (61%). Reclusive substitution of the top 30 cost-intensive drugs shows a reduction of annual medication costs for the entire patient sample of €44.960 (1.6%), with highest incentives for a substitution of "Zinnat® 250 (Cefuroxime)", "Augmentan® 875/125 (Amoxicillin & Clavulanic acid)", as well as "Zithromax® 250 (Azithromycin)". The largest amount of annual costs is caused by medication group "oral antibiotics & antiinfectiva". It accounts for approx. €1.14 million, which could be lowered by €38.205 (3.3%) using substitutes at a lower price if applicable. Furthermore, realizing the cost saving potential across the four most expensive medication groups reveals annual savings of €76.658 (2.8%).
Outlook: Realizing the cost saving potential can optimize the medication portfolio and enhance sustainable medical care for patients with CF.

433 Creatinine clearance in cystic fibrosis patients: MDRD, Cockcroft-Gault and measured creatinine clearance

I. Bronsveld[1], L.H. Conemans[1], E.A. van de Graaf[1], J.W. Lammers[1], F. Teding van Berkhout[1]. [1]*University Medical Centre Utrecht, Utrecht, Netherlands*

It is known that CFTR is expressed in the kidney, however it is not clear whether aberrant or absent CFTR leads to loss of renal function in CF. Earlier investigations did report on secondary renal dysfunction caused by nephrotoxic effects of CF drugs, such as aminoglycosides. To investigate renal disease in CF we were searching for an easier but accurate alternative to measured creatinine clearance to address renal function.
In this study we tested the accuracy of the abbreviated Modification of Diet in Renal Disease (aMDRD) and Cockcroft-Gault (CG) compared to the measured creatinine clearance (mCCL). Therefore, we included the measurements on collected 24-hours urine samples of CF patients admitted to the hospital for IV antibiotics and the measured creatinine clearances performed during screening sessions for lung transplantation. This resulted in a total of 35 measurements.
We first divided the group in patients with normal renal function (mCCL >80 ml/min) and those with a diminished renal function (mCCL < 80 ml/min). In both groups, there was a strong correlation between the mCCL and aMDRD, and between the mCCL and CG results. Momentarily, we are enlarging our study with patients with severely impaired kidney function, to test correlations between estimated and measured values in lower ranges of creatinine clearance.
In conclusion we have found that aMDRD and CG have good correlations with measured creatinine clearance. We found biases and ranges of error in CF patients with diminished renal function that are acceptable (data not shown in abstract). Thus, in this population the aMDRD and CG formulas can be used in CF patients, also in those with diminished creatinine clearance, to determine renal function.